
Providing a Nurturing Environment for Start-up Incubation: An Explorative Study of a University-based Entrepreneurial Ecosystem

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Abstract:

Purpose: The empirical purpose of the study is to identify the key actors of the local university-based start-up ecosystem and assess the forms of support (substantive, financial and organizational) they provide to create a conducive environment for academic start-ups.

Design/Methodology/Approach: The paper draws on a broad management science literature review, covering various approaches to the concept of entrepreneurial ecosystems, using the following methods: exploration, interpretation, comparing, analysing critical factors, and inferring. The empirical research applies the method of in-depth semi-structured direct interview with experts in the field of support services to potential founders and start-ups with academic origin, the case study method, participatory observation, and reflection. The explorative qualitative study uses both descriptive and explanatory techniques.

Findings: The research findings provide insight in the real nature of the local university-based start-up ecosystem presenting its key actors (stakeholders), the forms of their support for start-up incubation and ways of creating a conducive environment for potential founders and start-ups, as well as critical factors of entrepreneurial ecosystems.

Practical Implications: The synthesis of the current reflections on entrepreneurial ecosystems can contribute to the discussion on the dilemmas associated with increasing the efficiency and sustainability of local start-up ecosystems and the need to build valuable relationships with external stakeholder. The research findings reflected here can benefit both employees of business incubators, researchers, and entrepreneurship teachers and become an inspiration for further analysis and extended research on this problem.

Originality/Value: The originality of the conducted exploratory research lies in presenting the key actors, their interrelationships, and achievements of the specific university-based start-up ecosystem as well as the supporting activities and formats provided by the university business incubator to create a favourable environment for academic start-ups. The study highlights the mutual relationships within the start-up ecosystem and critical factors which are crucial to stimulate and support ambitious entrepreneurship in the region.

Keywords: Academic start-ups, entrepreneurial ecosystem, entrepreneurship, start-up ecosystem, university-based business incubator.

JEL codes: O31, O32, O33.

Paper Type: Research article.

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1. Introduction

Entrepreneurial ecosystems have gained increasing attention over the past decade as governments, private companies, universities and communities began to recognize the potential of integrated policies, structures, programs and processes that foster entrepreneurial activities in the region and boost innovation, employment growth and productivity (Isenberg, 2011; Mason and Brown, 2014; Stam, 2015; Hayter, 2016; Brown and Mason, 2017; Freiling and Baron, 2017; Spigel, 2017; Theodoraki *et al.*, 2018; Tomski, 2018; Wallisch *et al.*, 2019). Despite the increasing interest in entrepreneurial ecosystems, there is still a challenge how they should be composed and interrelated to create a conducive and supportive environment to set up and growth innovative ventures and thus contribute to the development of the region.

An essential basis for this study is the concept of entrepreneurial ecosystems (Isenberg, 2011; Brown and Mason, 2017) and the local start-up ecosystem, which focuses on the start-up scene (Wallisch *et al.*, 2019). The article strives for a deeper understanding what the real nature of an entrepreneurial ecosystem, and more precisely, a start-up ecosystem is looking like. The empirical purpose is to identify the key actors of the local university-based start-up ecosystem and assess the forms of support (substantive, financial and organizational) they provide to create a conducive environment for academic start-ups. An in-depth analysis is conducted through the prism of a ‘driver’ of the local start-up ecosystem which is the university business incubator. Therefore, to achieve the research objective and exemplify the studied problem in practice, the following research question was posed: *What is the configuration of critical actors of the European University Viadrina start-up ecosystem and what forms of valuable support they provide to create a conducive environment for academic start-ups to strengthen the entrepreneurial culture in the region?*

First, the article provides a theoretical foundation of entrepreneurial ecosystems. Second, the explicit focus is on entrepreneurial activities undertaken by the Viadrina Start-up Center to encourage and support potential entrepreneurs for gaining business knowledge, setting up their own ventures, and sharing experiences by networking. Third, the emphasis is on the local ecosystem actors – individuals, enterprises, institutions – which help to provide a nurturing environment for academic start-ups in the seed stage. The study highlights the mutual relationships within the start-up ecosystem and critical factors which are crucial to stimulate and support ambitious entrepreneurship in the region. Using a case study method (Yin, 2013) we can understand entrepreneurial ecosystems in a more specific manner and diagnose which actors really provide and organize the connection of resources within the specific ecosystem.

Moreover, proactive management can help improve conditions for members of the entire ecosystem. However, since an ecosystem is composed of living organisms, its relationships co-evolve (Hayter, 2016).

Research limitations of this study resulting from the analysis of a purposefully selected case study only do not allow formulating general conclusions. Nevertheless, it illustrates a real business practice of the development of the specific university-based start-up ecosystem, and thus contribute to the discussion on the dilemmas associated with increasing the efficiency and sustainability of entrepreneurial ecosystems.

2. Research Design and Methods

For the scientific purpose of this paper, a review of the management science literature was conducted along with the analysis of secondary research results on the phenomenon of entrepreneurial ecosystems. The attention was drawn to the stakeholders of this kind of ecosystem and its critical factors. The following methods were used to cover various approaches to this concept: defining, comparing, attribute analysis, inference. In turn, the empirical part of the study is an attempt to indicate stakeholders of a university-based start-up ecosystem and the forms of support they provide for the creation and development of academic start-ups, and thus, the entire local ecosystem.

The subject of the research is the European University Viadrina Start-up Center. Primary data acted as a basis to identify the stakeholders which are crucial for the studied problem. An explorative qualitative study was conducted based on in-depth direct interviews with the manager and employees of the Viadrina Start-up Center in the years 2020-2021. An interview questionnaire was semi-structured and contained the following: (i) general questions about the Viadrina Start-up Center and its organizational structure; (ii) questions about forms and scope of supporting future entrepreneurs; (iii) questions about the sources of financing innovative business concepts of students and alumni; (iv) questions about the critical actors of the start-up ecosystem and the forms of support they provide.

In order to verify the gathered information, the interview questionnaire was sent in an electronic form. The source of primary data was also: the author's participatory observation, reflection, and active collaboration in the field of supporting academic entrepreneurship within the research internship in Viadrina Start-up Center (September 2020; 2021) as well as during the Global Entrepreneurship Weeks at European University Viadrina in the years 2017-2020.

The empirical method makes use of a case study involving the analysis of activities undertaken by the Viadrina Start-up Center to effectively support student entrepreneurship and build valuable relationships with stakeholders. The rationale for the use of the case study is its usefulness for the practice-oriented approach (Yin, 2013) related to the need of building effective cooperation within the entrepreneurial ecosystem. The nature of the case study is descriptive and reflective, and as a result it provides an illustration of the local university-based start-up ecosystem. The necessity to confront various data sources forced the application of the triangulation principle (multi-

method study) (Sułkowski and Marjański, 2014). To expand the database on the Start-up Center an analysis of materials from the available secondary sources was also conducted. They included: incubator's website, press releases, opinions of supported students, and the social media run by the Viadrina Start-up Center.

3. Entrepreneurial Ecosystems – Conceptualization and Critical Factors

Ecosystems are a cognitively interesting area of exploration in the field of management science. In the subject literature can be found various directions of research on ecosystems, such as, for example, the business ecosystem (Ben Letaifa, 2013; Adner, Oxley, and Silverman, 2013; Stańczyk-Hugiet, 2015), the innovation and knowledge ecosystem (Autio and Thomas, 2014; Adner and Kapoor, 2016; Brown and Mason, 2017; Klimas and Czakon, 2021), the entrepreneurship (Isenberg, 2010; 2011) or entrepreneurial ecosystems (Stam, 2015; Stam and Spigel, 2017) or their connections with the system theory (Cohen 2006; Isenberg 2011; Stam 2015), the network theory (Autio and Thomas 2014; Letaifa, 2016) or clusters (Bathelt *et al.*, 2004; Gilbert *et al.*, 2008; Mason, 2008).

The emergence of this concept is the result of applying the ‘ecosystem’ metaphor to the issue of entrepreneurship where the ecosystem is considering a functional whole of the coordinated set of elements and mutual relationships between them and their environment. The term ecosystem was originally coined by James Moore (1993) who claimed that businesses do not evolve in a ‘vacuum’ and noted the relationally embedded nature of how firms interact with suppliers, customers, and financiers.

Moreover, Roasted (2012) argued that in dynamic ecosystems new firms have better opportunities to grow and create employment compared with firms created in other locations. What is more, ecosystems are capable of self-organization and self-development in the form of complex, adaptive systems related to the interrelationships of components and the ability to adapt ‘inside’ and evolve together with the changing environment (Chan 2001, in Tomski, 2018, p. 115).

The research subject in this study is the entrepreneurial ecosystem, or more precisely, the local university-based start-up ecosystem ‘driven’ by the academic business incubator, which is presented in the empirical part of this article. One of the first uses of the term ‘entrepreneurial ecosystem’ is attributed to Boyd Cohen (2006), who defines it as an interconnected group of actors in the local (geographically) community committed to sustainable development by supporting new ventures. A particularly influential approach to entrepreneurial ecosystems has been developed by Daniel Isenberg at Babson College who refers to as an “entrepreneurship ecosystem strategy for economic development” (2011, p. 1). He strongly emphasizes the importance of context, each ecosystem emerges under a unique set of conditions and circumstances where social, cultural and institutional factors play an underpinning role.

Subsequent research, inspired by system theories, enables us to understand the ecosystem as a whole (Isenberg 2011; Stam 2015). These studies visualize ecosystem composition and the elements the system contains. Moreover, Isenberg (2010) identified six generic

domains within the entrepreneurial ecosystem, namely, a conducive culture, a range of institutional and infrastructure supports, quality human capital and social networks, venture friendly markets for products and services, as well as enabling policies and leadership, and availability of appropriate financial capital. All these domains contain many elements and factors “interacting in highly complex and idiosyncratic ways” (Mason and Brown, 2014).

Furthermore, Mason and Brown (2014) proposed a very extensive definition of the entrepreneurial ecosystem, emphasizing the diversity of the ecosystem's actors, processes, and mutual formal and informal relationships. It is “a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g., firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies) and entrepreneurial processes (e.g., the business birth rate, numbers of high growth firms and serial entrepreneurs (...)) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment” (Mason and Brown, 2014).

This definition mirrors the essence of entrepreneurial ecosystems “to connect a critical mass of actors and resources that fuel the entrepreneurial actors in the entire region and provide a self-sustaining environment in which entrepreneurial activity emerges and start-ups develop and expand” (Freiling and Baron, 2017). In turn, Spiegel (2017) emphasizes the result of an effective ecosystem, which is the productive entrepreneurship, namely: *The entrepreneurial ecosystem is an interdependent group of local culture (actors), social networks, universities, investment sources, coordinated economic policies (factors) in such a way as to create a good environment enabling productive entrepreneurship in each region.*

It can therefore be concluded that the main idea of the entrepreneurial ecosystem is to provide a nurturing and favourable environment for creating new, successful enterprises, supporting innovation, and sustainable growth through appropriate measures to stimulate and encourage local entrepreneurship. Therefore, it is not enough to analyse the successful people themselves, but it is also necessary to understand their environment, and even, and perhaps above all, the mutual relationships and facilities that determine the sustainability of the entire ecosystem.

Moreover, a stable environment where trust dominates promotes the transfer of knowledge and skills among the members involved. In this sense, trust and cooperation are based on complementarity, which is characterized by cumulative and synergistic interactions between ecosystem members (Thomas and Autio 2013; Adner and Kapoor 2016). Without ties and common goals among the ecosystem actors, they could not share important resources, some of them they are willing to share (e.g., experiences, human capital, expertise, infrastructure).

Considering the above considerations, it should be noted that a start-up ecosystem as a specific type of entrepreneurial ecosystems focuses on the potential for founders and start-ups in their region. It forms the framework conditions and networks for this specific target to provide a better accessibility of resources and facilities to ensure an effective

cooperation with supporting actors and location factors. Moreover, its aim is to promote relationships between the stakeholders and to identify appropriate actions for the development of networks and support measures in the region (Wallisch *et al.*, 2019). It should be emphasized that the success of this ecosystem lies in its entrepreneurial ability to create coherent social and economic systems that support the creation and development of new enterprises (Stam and Spigel, 2016).

However, despite the ongoing research on ecosystems, there is still a challenge how to structure all these actors and factors that may drive the performance and dynamism of start-up ecosystems. Drawing on this research stream, we define university-based start-up ecosystem as an interconnected group of actors and institutions in a local geographic environment, associated with a specific university, committed to provide conducive framework conditions for (potential) academic founders and start-ups and support networking within the entire ecosystem to achieve common goals.

It is commonly known that ecosystems possess certain resources that are not available by other regions as, for example, Silicon Valley. For this reason, the interplay of local resources and their relationships for supporting entrepreneurship have become of major relevance to local and regional strategies and policymakers. However, specific policy support instruments to nurture high growth start-ups are primarily ‘transactional’ in nature, notably access to public funding, R&D grants and tax incentives or business accelerators whereas networking, mutual trust, and relationships as well as peer-based support assume greater significance (Brown *et al.*, 2014) for the local environment.

Undoubtedly, to ensure the sustainable development of the ecosystem, consistency must be ensured in terms of critical factors. Researchers of this subject (Adams, 2011; Isenberg, 2011; Feld, 2012; Thomas and Autio 2013; Acs *et al.*, 2014; Mason and Brown, 2014; Neumeyer and Corbett, 2017; Spigel 2017; Stam and Spigel, 2017; Freiling and Baron, 2017; Theodoraki *et al.*, 2018; Wallisch *et al.*, 2019) indicate, inter alia, on the following critical factors for ecosystem emergence and sustainability:

- defining the goals, common values and tasks of the entire entrepreneurial ecosystem and monitoring their effects,
- actively building and supporting the local culture of entrepreneurship,
- developing the ecosystem’s managerial talent pool,
- creating and capturing values within the ecosystem,
- ensuring support for human and social capital,
- creating a positive attitude to failure,
- building relationships among stakeholders based on trust,
- ensuring entrepreneurial ‘recycling’ whereby successful cashed out entrepreneurs reinvest their time, money, and expertise in supporting new entrepreneurial activity,
- providing commercial opportunities for local businesses and high growth firms,
- ensuring a strong business infrastructure,
- raising funds for investments,
- ensuring public policy that provides conditions for sustainable development of innovative ventures,

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- ensuring the consistency of common communication in the ecosystem by exchanging best practices,
 - promoting an information-rich environment in which this information is both accessible and shared,
 - supporting informal connectors, the so-called ‘bridging assets’, to connect people, ideas and resources efficiently.

It is obvious that members of an entrepreneurial ecosystem benefit from a vital development of the entire system. There is a ‘give and take’ relation that helps individuals and institutions access external assets that undergo refinement and learning processes (Freiling, 2008). Moreover, the turbulent environment challenges ecosystem members to “contribute to the development of a favourable climate to maintain the ecosystem’s stability, durability, and continuing value” (Theodoraki *et al.*, 2018). Other important aspects recognised as key components of entrepreneurial ecosystems include its culture, positive societal norms and attitudes towards entrepreneurship, the availability of start-ups and growth capital, as well as the presence of large firms, universities, and service providers. Regarding the research subject, it should be emphasized that the most important contribution that universities make to a start-up ecosystem is its students who bring new ideas and increase the intellectual capacity of the community (Badzińska and Timonen, 2020).

4. The Case Study of a University-based Start-up Ecosystem

The Viadrina Start-up Center is a university-based business incubator located at the European University Viadrina in Frankfur (Oder), State of Brandenburg in Germany, which was established in 2015. Six people are currently working in the Start-up Center, most of them part-time. There are also four student employees with a small number of hours (of 8-10 hours per week), so that is 4.8 so-called full-time units. The Start-up Center is currently running four projects. This means that it is largely financed by third-party funds or additional funds, such as the Ministry for Economic Affairs, Labour and Energy (MWAE) with funds from the European Social Fund and the State of Brandenburg. The manager of the Viadrina Start-up Center (Dr. Ramona Alt) has many years of experience in the field of start-up and entrepreneurship promotion and support and has headed the Start-up Center at the University since 2015.

Generally, an incubator’s purpose is to provide a supportive environment that enhances the probability of incubates’ survival and success. However, the Viadrina Start-up Center is strongly committed to a start-up-friendly climate in Brandenburg therefore it undertakes activities to strengthen the start-up culture in the region, improve framework conditions and support start-up networks. As a key actor of the university-based entrepreneurial ecosystem it mainly provides services to potential founders and start-ups with academic origin facilitating their access to academic and business networking as well as assist scientist in the transfer of technology and substantive knowledge.

In order to overcome resource gaps in the seed stage of potential founders and start-ups the employees of Viadrina Start-up Center help support networking with external entities such as advisers, investors, potential partners or team members, early-adopter customers,

and potential employees as well. Thus, it provides connectivity with the key actors of the local entrepreneurial ecosystem. Because the Start-up Center is publicly funded, reductions in public funds can influence the scope of activities and decrease support for potential founders. This is one of the reasons why the manager does not strive to build a vast ecosystem with a huge number of entities, but on the contrary looks for resources, relationships and actors who effectively support start-up entrepreneurship through the transfer of expertise, good business practices, organization of events and funding as well.

In recent years the Viadrina Start-up Center has brought an average of 11-12 founders per year. However, the number of those who have been qualified for support is significantly higher. The mission of the Start-up Center is also raising students' awareness of the entrepreneurial mindset through a variety of events and formats. These are then called participants in the program and there are an average of around 1400 people a year. Successful applicants are provided with public funding and mentor support, but often they try to start their business by using limited resources of money. Moreover, the potential founders involved in these entrepreneurial initiatives recognise that it takes time to build a vibrant, sustainable venture.

Viadrina Start-up Center aims to create an environment which is conducive to academic start-ups therefore it has developed a set of framework conditions for encouraging entrepreneurial activities among potential founders (e.g., professional workshops during the academic year, meetings with academic start-ups and business advisers, 'podium' discussion, pitch competition and many others). All activities are designed to improve the chances of success for this target group. To sensitize students for entrepreneurship, the Start-up Center employees offer them 'relational' support, such as strategic guidance, business mentoring, advice on the financing plan and financing options as well as leadership and team development. This kind of interactive and practice-oriented learning is thought to be of more value to potential founders.

Moreover, the employees of the Start-up Center attach great importance to the coherence of communication in the local ecosystem and building sustainable relationships with valuable actors through the exchange of best practices and creating common ecosystem value. Previous research confirms that ecosystem members are more involved in a network organization with shared values and goals (Thomas and Autio, 2013; Spigel, 2017). Moreover, when relationships are based on trust, stakeholders are more likely to cooperate, exchange information and share the state-of-the-art knowledge.

Focusing on relational elements within the start-up ecosystem a crucial role is also played by the buzz of specific and continuous updated information important for the members, intended and unintended learning processes during meetings, as well as shared entrepreneurial cultural behaviours. All the factors stimulate better mutual understanding. The employees of the Start-up Center are aware that both individuals and teams contribute to and benefit from the diffusion of information, so they try to support the flow of buzz in a useful and meaningful way. However, its effectiveness depends on the local social relations. It is well known that entrepreneurs and potential founders need to utilize their social networks of business associates and start-up scene to access the cut edge knowledge, human capital, and other resources required to create and sustain their

entrepreneurial ventures. One of the major challenges for the team of Viadrina Start-up Center is to interconnect actors, available resources, and competences in the local start-up ecosystem in a highly useful manner.

Despite the fact that resources are often no stand-alone factors, when combined with both internal and often external assets they create synergies. As there are a lot of possible combinations of actors in an entrepreneurial ecosystem, the question is who is the ‘architect’ of the structure of the entire ecosystem. Usually „all the members of an entrepreneurial ecosystem have some discretion to act as architects of resources and capital structures” (Freiling and Baron, 2017). This study assumes that the main ‘architect’ (leader) of the local start-up ecosystem structure is the Viadrina Start-up Center, which initiates and supports activities towards the creation and development of academic start-ups. As a result of the conducted empirical research, entities / actors considered necessary for the studied start-up ecosystem were identified, as outlined in Table 1.

Table 1. Entities of the university-based start-up ecosystem ‘driven’ by the Viadrina Start-up Center providing substantive, financial, organizational support

Type of entity	Name	Number of partners / persons	Form of support
Scientist / Researcher	Faculty of Law Faculty of Social and Cultural Sciences Faculty of Business Administration and Economics European New School	14	Substantive support
University authorities	President and President’s Office Vice-president for Research and Transfer Vice-president for International Affairs and European New School Head of Administration / Chancellor	9	substantive, financial and organizational support
Other contact points at the European University Viadrina	Career Center Office for Research and Graduate Education Department of Public Relations Doctoral Programm DCR - Graduate College Presence Point Fürstenwalde	6	organizational support
Founding teams, start-up community, potential founders	SitEinander UG; Branding Doctors; Bottled Liquids GmbH; Ivis Media; Roebucks GmbH; Grey Bar Hotel Label; Die Kulturingenieure GbR; Kopfkapital; Webquarks Online Marketing; Flamingohat; Accuraent UG; Conntect GbR and others	25	Substantive and organizational support
Start-up centers at universities in Brandenburg	Start-up centers and services at several universities and universities of applied sciences in Brandenburg	7	Substantive support: exchange of experiences, collaboration
Partner universities	FAU Erlangen; Campus Founders, Poznan University of Technology	3	Substantive support: exchange

			of experiences, (international) collaboration
Government institutions at the State of Brandenburg level	MWAE - The Ministry for Economic Affairs, Labour and Energy I Brandenburg WFFB – Economic Development Agency I Brandenburg	5	substantive, financial and organizational support
Local government administration bodies	Municipality I Frankfurt (Oder)	3	Substantive support
Institutions in the business environment, such as IHK, HWK	IHK - Chamber of Industry and Commerce HWK - Chamber of Crafts Businessmen's association as UVB, Interessenvereinigung der Unternehmen LOS-FF	8	Substantive support
Entrepreneur's association, networking platforms	Young Managers and Entrepreneurs I Wirtschaftsjunioren Ostbrandenburg,	30	Substantive support: exchange of experiences, collaboration
Competence Center at the country level	RKW Rationalisierungs- und Innovationszentrum der Deutschen Wirtschaft e. V. I Kompetenzzentrum RKW Rationalization and Innovation Center of the German Economy I Competence Center	10	Substantive support
Public business advisory centers	BIC – Business and Innovation Center Frankfurt (Oder) GmbH ICOB – Investor Center Ostbrandenburg	4	Substantive support
Private business consultants	Lawyers Tax consultants Business consultants Marketing advisers	30	Substantive support, consulting service
Coworking Spaces	Several Coworking Spaces (BLOK O, Kulturmanufaktur Gerstenberg, Roman & Fritz, Spree-Hub) Hirer of commercial premises	6	organizational support
Financial institutions	ILB – Business development bank of the Federal State of Brandenburg IBB – Business development bank of the Federal Land of Berlin Several banks	5	financial and organizational support
Investors, business angels (& local companies, which support the ecosystem)	Stadtwerke and others	3	Financial support
Business School	Vocational business school	1	Substantive support: collaboration

Source: Own elaboration.

The important point to note is that entities creating the ecosystem, through the specialization of their members, provide specific resources to the entire ecosystem. In addition, each member contributes through its core competencies and works with others to enhance both individual performance and benefit from the value created by the ecosystem. Moreover, founders and start-ups gain significant value through their access to internal and external networks, which help them develop business partnerships, recruit qualified personnel, and obtain advice from external experts.

In the studied ecosystem the crucial role is played by the Viadrina Start-up Center, which works in a highly complex manner trying to connect the most powerful actors creating and supporting the university-based entrepreneurial ecosystem. The key actors of the entire ecosystem are, of course, students – potential founders – as well as alumni and start-ups from the European University Viadrina and the local environment. It is their entrepreneurial and innovative activity that initiates the emergence of the start-up scene as the core around which the entrepreneurial ecosystem will develop and evolve.

Since the subject of the research is the start-up ecosystem with academic origin, an important role is played by the academic community represented by researchers and entrepreneurship teachers, as well as authorities providing both substantive, organizational, and financial support as well. Other contact points at the European University like for example the Career Center or Office for Research and Graduate Education also contribute to raising awareness of entrepreneurship, self-employment, and further development. In addition, exchange of experiences and organizational collaboration with start-up centres and services at several universities and universities of applied sciences in Brandenburg bring also tangible effects for the local ecosystem.

The Viadrina's team tends to build both bilateral relationships among local organizations and extended multilateral relations as well. Some informal boundaries play also very important role in many areas of the ecosystem building. In turn, cooperation with partner universities, also on an international basis, translates into combining the potential and exchanging experiences of future founders in the fields of economic, technical and humanities fields of studies. Examples of such activities initiated by the Viadrina Start-up Center are e.g. „Let's Match! Frankfurt/O – Potsdam – Poznań workshop as part of the Global Entrepreneurship Week in November 2020 or the creation of international teams of potential founders within the project “Heterogeneous University Start-ups” in the time of 2020-2021 and the latest project “Start-up Ecosystem on the Spree-Oder Innovation Axis” in the time of 2021-2023. Viadrina seeks to build channels of communication with selected external partners to access more specialised knowledge and assets not available locally. The experience gained confirms that networking, peer-based support, and regular interactions assume greater significance over time.

Other key elements of the start-up ecosystem create entrepreneurs' associations, networking platforms and coworking spaces. They provide opportunities to engage potential founders, as they facilitate the sharing of knowledge and business experience, building a sense of a common start-up community. In addition, each member of the start-up community contributes through its core competencies and collaborates with others to strengthen both individual performance and benefit from the value created by the entire

entrepreneurial ecosystem. Furthermore, the manager and staff of the Start-up Center rely on various actors in the ecosystem to provide potential founders with substantial knowledge. They take on the role of an intermediary, for example by linking young entrepreneurs with private business consultants such as lawyers, tax consultants, business consultants or marketing advisers. This relational dimension becomes an important attribute for effective and sustainable cooperation.

The availability of finance is a further critical feature of entrepreneurial ecosystems. Particularly important is a critical mass of seed and start-up investors to provide finance and hands on support. The investors in the initial waves of new ventures are often private individuals. As noted earlier, most start-ups are initially funded through a combination of self-financing, microcredit, loans from family and friends, and bootstrapping. The Start-up Center offers professional advice in this area. Financial support can also be obtained from government institutions at the State of Brandenburg level.

In turn, substantive support is offered by public business advisory centres such as Investor Center Ostbrandenburg (ICOB). The leading financial institutions that target start-ups and entrepreneurs are the Business Development Bank of the Federal State of Brandenburg (ILB) and the Business Development Bank of the Federal Land of Berlin (IBB). In turn, the Chamber of Industry and Commerce (IHK) and the Chamber of Crafts (HWK) offer professional career advice.

An ecosystem must be composed not of specific isolated actors but of the interactions among them. The Viadrina Start-up Center acts as a catalyst for a variety of actors (e.g., universities, chambers of commerce, founding teams, start-up community, government institutions at the State of Brandenburg and local level, private business consultants) to encourage the creation of programs and favourable conditions that build awareness of the local start-up community, stimulate the flow of new founders but also support further development of established entrepreneurs.

Summarizing the research results, it should be emphasized that the European University Viadrina has already achieved first place four times in the university ranking “Think Tank” of the Business Plan Competition as the most successful university in the field of start-ups in the whole of Brandenburg (the last time in 2018). Moreover, in the Germany-wide comparison of the start-up radar 2020 the European University once again ranks second among 71 medium-sized universities. These results are proof that the wide range of services offered by the Viadrina Start-up Center works. The manager also emphasizes: "Without our students, with their diverse backgrounds and great business ideas, these start-up successes would not be possible" (2020).

5. Conclusions and Recommendations

The rationale for providing the nurturing environment for academic start-up incubation is that they have important spill-over effects which are beneficial to the emergence of other founders and start-ups in the same locality. Moreover, they can increase the transfer of research findings from university to the market, drive productivity growth, create new employment, as well as promote business internationalization. There is also

evidence that growth-oriented start-ups provide an important stimulus within entrepreneurial ecosystems by increasing both competition and cooperation, promoting innovation, increasing the efficient allocation of resources, and investing heavily in human capital. However, exploring an entrepreneurial ecosystem requires to take into considerations its origin, stimulus as well as the processes by which it becomes self-sustaining.

The Viadrina Start-up Center as the ‘driver’ of the university-based start-up ecosystem tries to shape and strengthen the networks and relationships between the crucial ecosystem stakeholders in such a way that the academic support landscape can be stimulated, and start-ups successfully created and developed. Nevertheless, to ensure the development of an entrepreneurial ecosystem, it is necessary to implement of a more systems-based forms of support for the key members. This requires, *inter alia*, a shift away from enterprise specific interventions towards more holistic activities that focus on creating and developing networks, mutual relationships, building new institutional capabilities, and fostering synergies between different stakeholders. The research results highlight the importance of studying the interdependencies among key actors in the start-up ecosystem to provide them with access to tangible and intangible resources enabling their development, and thus the sustainable development of the entire ecosystem.

The future research line includes assessment of the significance and direction of the relationships between the diagnosed actors in the university-based start-up ecosystem. The reason for this is that simply creating supportive framework conditions is insufficient. The strong focus on relational elements within the ecosystem and the common value creation are required to build effective support and favourable environments for business start-ups.

Entrepreneurial ecosystems pose various challenges and constantly evolve, therefore also policy intervention needs to take a holistic approach, not just ‘transactional’. Finally, it is important to develop comparable metrics in order to determine and assess the strengths and weaknesses of individual ecosystems aimed at identification whether and how to intervene, and monitor over time the effectiveness of such interventions.

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